ECONOMIC PERFORMANCE OF SAFS TRIAL 2006

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TILLAGE SYSTEMS:Conservation (CT) and Standard (ST)
PRODUCTION SYSTEMS: Conventional (Conv), Organic (Org), Organic With Premium Prices (Org+), and Winter Legume Cover Crop (WLCC)
CROPS: Processing tomato, corn

KEY RESULTS:

- ♣ CT reduced number of field operations and fuel use in half for both tomato and corn
- ♣ Tomato yields were higher for ST than CT and varied more for Org than Conv or WLCC
- ♣ Corn yields varied across production systems but not across tillage systems
- ♣ Price premiums for tomato 45% and for corn 71%
- ♣ ST Org+ the most profitable tomato system, ST WLCC the lowest
- ♣ CT Conv the most profitable corn system, CT Org the lowest
- ♣ Org systems most expensive due to cover crop, manure and high water use
- ♣ WLCC lowest cost system with no manure and no herbicide BUT lowest yields

Table 1. YOLO COUNTY PRICES FOR TOMATOES AND CORN, 2006

Commodity	---- Conventional ----	------ Premium -----
	---------- $/Unit ----------	
Tomatoes (processing)	58.00/ton	84.10/ton
Corn (field)	140/ton	240/ton

Table 2. YIELDS FOR YOLO COUNTY [§] AND SAFS TOMATOES AND CORN, 2006

		---------- ST ----------		
Commodity	**Yolo County [§]**	**Conv**	**Org**	**WLCC**
	---------- Yield/Acre ----------			
Tomatoes (processing)	33.08/ton	35.43 ton	37.12 ton	24.75 ton
Corn (field)	5.22/ton	4.67 ton	3.04 ton	2.07 ton
		---------- CT ----------		
	Yolo County [§]	**Conv**	**Org**	**WLCC**
	---------- Yield/Acre ----------			
Tomatoes (processing)	33.08/ton	32.89 ton	24.59 ton	24.18 ton
Corn (field)	5.22/ton	4.61 ton	3.12 ton	2.12 ton

[§] 2005 yields from the Yolo County 2005 Agricultural Crop Report published in mid 2006.

Table 3. FERTILITY MANAGEMENT PRACTICES AND INPUTS PER ACRE FOR SAFS PROJECT, 2006 [§]

Commodity	Conventional	Organic	Winter Legume Cover Crop
Tomato		Plant Bell beans @ 80 Lbs, Vetch @ 20 Lbs & oats @ 35 Lbs	Plant Bell beans @ 80 Lbs, Vetch @ 20 Lbs & oats @ 35 Lbs
	Preplant - 15-15-15 @ 45 Lbs Sidedress - 21-0-0-24 @ 100 Lbs N	Poultry Compost 1.36% N @ 4.0 ton	Preplant - 15-15-15 @ 45 Lbs
Corn	Post-plant - 46-0-0 @ 165 Lbs N Sidedress - 15-15-15 @ 45 Lbs	Poultry Compost 1.36% N @ 4.0 ton Plant bell beans @ 80lbs/ac, vetch @ 20 lbs/ac, & oats @ 35 lbs/ac)	Plant bell beans @ 80lbs/ac, vetch @ 20 lbs/ac, & oats @ 35 lbs/ac)

[§] Applied to both CT and ST.

Table 4. PEST MANAGEMENT PRACTICES AND INPUTS PER ACRE FOR SAFS PROJECT, 2006 [§]

Commodity	Conventional	Organic	Winter Legume Cover Crop
Tomato - Weeds	Roundup @ 2.0 Pints		
	Roundup @ 2.0 Pints		
	Triap @ 0.75 Pints		Triap @ 0.75 Pints
	Triap @ 0.75 Pints & Dual @ 1.5 Quarts		Triap @ 0.75 Pints & Dual @ 1.5 Quarts
	CT: Mulch Beds w/ Incorporator 1X ST: Mulch Beds w/ Incorporator 2X	CT: Mulch Beds w/ Incorporator 1X ST: Mulch Beds w/ Incorporator 2X	CT: Mulch Beds w/ Incorporator 1X ST: Mulch Beds w/ Incorporator 2X
	CT: Cultivate 1X ST: Cultivate 3X	CT: Cultivate 1X ST: Cultivate 3X	CT: Cultivate 1X ST: Cultivate 2X
Insects & Diseases	Sulfur @ 20 Lbs & BT @ 1.5 Lbs.	Sulfur @ 20 Lbs & BT @ 1.5 Lbs.	Sulfur @ 20 Lbs & BT @ 1.5 Lbs.
Corn - Weeds	Roundup @ 1.0 Quart		Roundup @ 1.0 Quart
	Roundup @ 1.0 Quart		
	Roundup Weathermax @ 22 Oz		ST: Roundup Weathermax @ 22 Oz
	ST: Cultivate 2X	Cultivate 3X	ST: Cultivate 2X

[§] ST = applied to Standard Tillage only, CT = applied to Conservation Tillage only.

Table 5. IRRIGATION MANAGEMENT PRACTICES AND INPUTS PER ACRE FOR SAFS PROJECT, 2006 [§]

Commodity	Conventional	Organic	Winter Legume Cover Crop
Tomato	12X – 8.7 Acre-Inches	11X – 52.6 Acre-Inches	12X – 40.2 Acre-Inches
Corn	12X – 27.2 Acre-Inches	11X – 59.3 Acre-Inches	13X – 26.8 Acre-Inches

[§] Applied to both CT and ST.

Table 6. LABOR AND FUEL USAGE FOR TOMATOES AND CORN – 2006 [§]

	Standard Tillage				Conservation Tillage			
Input	Conventional	Organic	Organic +	WLCC	Conventional	Organic	Organic +	WLCC
	$ Per Acre							
	Tomatoes							
Machine labor (Hrs)	7.51	6.89	6.89	7.18	5.44	4.83	4.83	5.01
Non-machine labor (Hrs)	6.30	6.20	6.20	6.30	6.28	6.20	6.20	6.30
Gallons of fuel (Gals)	62.16	56.24	56.24	58.46	43.05	38.69	38.69	39.17
	Corn							
Machine labor (Hrs)	4.47	4.51	4.51	4.70	2.05	2.89	2.89	2.02
Non-machine labor (Hrs)	1.20	1.10	1.10	1.20	1.20	1.10	1.10	1.20
Gallons of fuel (Gals)	36.08	35.38	35.38	36.71	12.30	16.75	16.75	11.57

[§] Includes fuel and labor for opening and closing drains which is not done in the SAFS Project, but is a normal practice in this area.

Table 7. SUMMARY OF PER ACRE OPERATING COSTS FOR SAFS, 2006

	ST			CT		
CROP	**Conv**	**Org**	**WLCC**	**Conv**	**Org**	**WLCC**
TOMATOES						
Ground Preparation	29	43	32	7	7	7
Cover Crop	0	68	65	0	58	57
Weed Control	156	16	67	94	16	77
Planting	475	516	475	475	516	475
Irrigation [§]	32	108	86	33	106	86
Fertility	84	167	14	76	167	14
Insect/Disease Control	51	51	51	51	51	51
Harvest	268	268	268	268	268	268
Residue Management	38	35	38	5	0	0
Interest	32	34	26	29	32	26
Operating cost/A	1,165	1,306	1,122	1,038	1,221	1,061
Operating cost/ton	32.88	35.18	45.33	31.56	49.65	42.47
CORN						
Ground Preparation	21	27	33	7	27	22
Cover Crop	0	66	66	0	58	57
Weed Control	74	26	33	59	24	36
Planting	65	55	65	66	55	65
Irrigation [§]	61	116	62	61	116	62
Fertilility	89	167	0	91	167	0
Harvest	15	15	15	15	15	15
Residue Management	86	74	79	6	6	0
Interest	15	16	8	13	17	8
Operating cost/A	426	562	361	318	485	265
Operating cost/ton	91.22	184.87	174.40	68.98	155.45	125.00

[§] Includes cost of opening and closing drains which is not done in the SAFS Project, but is a normal practice in this area.

Table 8. SUMMARY OF PER ACRE COSTS AND RETURNS FOR SAFS, 2006

	ST				CT			
CROP	**Conv**	**Org**	**[§] Org+**	**WLCC**	**Conv**	**Org**	**[§] Org+**	**WLCC**
TOMATOES								
Yield (tons/A)	35.4	37.1	37.1	24.8	32.9	24.6	24.6	24.2
Price/ton ($)	58.00	58.00	84.10	58.00	58.00	58.00	84.10	58.00
Gross returns	2,055	2,153	3,122	1,436	1,908	1,426	2,068	1,404
Operating cost/A	1,165	1,306	1,306	1,122	1,038	1,221	1,221	1,061
Net returns above operating costs	890	847	1,816	314	870	205	847	343
Total cost/A	1,512	1,648	1,648	1,469	1,362	1,559	1,559	1,384
Net returns above total costs	543	505	1,474	**-34**	546	**-133**	509	20
CORN								
Yield (tons/A)	4.7	3.0	3.0	2.1	4.6	3.1	3.1	2.1
Price/ton ($)	140.00	140.00	240.00	140.00	140.00	140.00	240.00	140.00
Gross returns	654	426	730	290	645	437	749	297
Operating cost/A	426	562	562	361	318	485	485	265
Net returns above operating costs	228	**-136**	168	**-71**	327	**-48**	264	32
Total cost/A	711	854	854	650	576	752	752	526
Net returns above total costs	**-57**	**-428**	**-124**	**-360**	69	**-315**	**-3**	**-229**

[§] Price for organic tomatoes and corn indicate a premium price paid for organic produce

Table 9. NUMBER OF OPERATIONS, TOMATOES - 2006

	Standard Tillage			Conservation Tillage		
Operation	Conventional	Organic	WLCC	Conventional	Organic	WLCC
Mow Cover Crop		1	1		1	1
Mow Residue				1		
Spread Compost		1			1	
Mulch Beds		1				
Strip Till Beds					1	
Strip Till Beds and Apply Herbicide				1		1
Disc And Keep Beds		3	3			
Smooth or Ring Roll Beds	1	1	1			
Pre-plant Fertilizer	1		1	1		1
Transplant Tomatoes	1	1	1	1	1	1
Spray Herbicide	2			2		
Spray Herbicide and Incorporate	2		2	1		
Cultivate with Incorporator					1	1
Cultivate	3	3	2	1	1	1
Cultivate & Fertilize						
Apply Sulfur and Insecticide	1	1	1	1	1	1
Spray Insecticide						
Fertilize	1			1		
Harvest	2	1	1	1	1	1
Haul Tomatoes	1	1	1	1	1	1
Finish Disc	2	2	2			
Stubble Disc	1	1	1			
Landplane Fields	1.5	1.5	1.5			
List Beds	1	1	1			
Plant Cover Crop		1	1		1	1
Times over the field	20.5	20.5	20.5	12.0	10.0	10.0

[§] Does not include irrigations or hand hoeing.

Table 10. NUMBER OF OPERATIONS, CORN - 2006

	Standard Tillage			Conservation Tillage		
Operation	Conventional	Organic	WLCC	Conventional	Organic	WLCC
Mow Cover Crop		1	1		1	1
Spread Compost		1			1	
Disc And Keep Beds		2	2		2	2
Ring Roll Beds	1	1	2		1	
Plant Corn	1	1	1	1	1	1
Spray Herbicide	3		1	3		2
Cultivate	2	3	2		3	
Fertilize	2			2		
Harvest	1	1	1	1	1	1
Bank Out Grain	1	1	1	1	1	1
Mow Corn Stubble	1	1	1	1	1	1
Finish Disc	2	2	2			
Stubble Disc	4	4	4			
Landplane Fields	2	2	2			
List Beds	1	1	1			
Plant Cover Crop		1	1		1	1
Times over the field	21.0	22.0	22.0	9.0	13.0	10.0

[§] Does not include irrigations